

### **REMARKS**

Favorable reconsideration and allowance of the claims of the present application, as amended herein, is respectfully requested.

This Amendment is filed in reply to the outstanding Official Action of March 10, 2003 and it is believed to be fully responsive to the Official Action for reasons set forth herein below in greater detail.

As a preliminary matter, in the Office Action the Examiner objected to the drawings as failing to comply with 37 C.F.R. §1.84(p)(5) as including reference numbers not described in the detailed description. For instance, the Examiner objected to drawing Figure 2(a) as comprising an element labeled "55" which, applicants acknowledge is not mentioned in the specification. In response to this rejection, the applicants submit a proposed drawing amendment to Figure 2 to remove the indication of an element 55 as shown in red ink in the proposed drawing amendment attached hereto. With respect to the objection to Figure 7, applicants submit that the signal labeled 50 as shown in Figure 7 is described in the specification and corresponds to the error signal shown in Figure 3 and is described in the specification, for instance, in connection with the description of Figure 2(a) on page 8, lines 8 et seq. of the present specification. In view of the foregoing, the Examiner is respectfully requested to remove the objection to the drawing Figures 2(a) and 7 as failing to comply with 37 C.F.R. §1.84(p)(5).

Further in the Office Action, the Examiner objected to the disclosure as comprising minor informalities with respect to the Brief Description of the drawings on Page 4, line 19 and further in the specification on page 8, line 13. Applicants take this

opportunity to amend the specification to correct these minor informalities and the Examiner is respectfully requested to remove the objection to the specification.

Further in the Office Action, the Examiner rejected Claims 9 under 35 U.S.C. §112, second paragraph, as being indefinite, and particularly for reciting a limitation "said cross-product signal" having insufficient antecedent basis. In view of amendment to Claim 1 (to be discussed herein) which Claim 9 indirectly depends, the antecedent problem in Claim 9 has been obviated and the Examiner is respectfully requested to withdraw the rejection of Claim 9 under 35 U.S.C. §112, second paragraph.

More substantively, in the Office Action, the Examiner rejected Claims 1-2, 4, 6-7, 14-15 and 19-20 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,289,028 to Munks et al. ("Munks"). The Examiner further rejected Claims 5, 8-13 and 17 under 35 U.S.C. §103(a) as allegedly being unpatentable over Munks.

The Examiner did indicate however that Claim 3 was allowable over the prior art reference to Munks as it describes a significant difference that distinguishes the present invention over the work of Munks, namely, the principle of a servo mechanism capable of generating a frequency doubled error signal when the optical signal and optical filter element or wavelength selective device center wavelengths are congruent. That is, the principle of operation of the wavelength locked loop for an optical system of the present invention is the use of a servo mechanism capable of generating a frequency doubled error signal. Each of the independent Claims 1, 14 and 19 have been amended herein to set forth the phenomena that when a frequency characteristic of the feedback (error) signal is two times the dither modulation frequency, the wavelength of the optical

signal exactly matches (or becomes aligned with) a desired wavelength of the optical filter element. Integral to this wavelength locked loop principle is the generation of an error signal which comprises a vector cross product of the feedback signal and a dither modulation signal and which yields frequency doubling. Advantageously, this error signal is a continuous, bi-polar error function that is capable of being adjusted positive or negative for driving the wavelength of an electromagnetic signal (e.g., optical signal) respectively less than or greater than a center wavelength of the wavelength selective means (e.g., optical filter element) according to a desired application, e.g., variable attenuation, dynamic gain etc.), and accordingly may be adjusted for maximal overlap with the center frequency of the filter element for maximum optical signal throughput, or minimum overlap with a peaked passband function of an optical filter so that the output optical signal may be attenuated. Thus, this continuous bi-polar nature of the error function is capable of being adjusted positive or negative for adjusting the passband wavelength of the wavelength selective means (e.g., optical filter) according to a desired application. Respectfully, no new matter is being entered by the amendments to Claims 1, 14 and 19.

To effect the amendment to Claims 1, 14 and 19, Claims 2-3, 15 and 20 have been canceled and the respective subject matter thereof have been incorporated in the respective amended base independent Claims 1, 14 and 19. Additionally, dependent Claims 4,6 8-9, 11, 16 and 18 have been amended in a fashion commensurate to either change dependencies in accordance with the respective base claims (i.e., Claims 4,6 8, 11 and 16) or to amend language commensurate with the amendments to their respective

base claims (i.e., Claims 8, 9 and 18).

As the Examiner has correctly acknowledged, Munks does not show, much less teach or suggest the frequency doubling phenomena. Therefore, it may be respectfully stated that this invention is patentably distinguishable over the prior art of Munks, i.e., Munks does not anticipate the present invention as claimed in amended independent Claims 1, 14 and 19 and the rejections of independent Claims 1, 14 and 19 under 35 U.S.C. §102(b) have been obviated by the above amendments; therefore reconsideration and withdrawal thereof and of all claims directly or indirectly dependent thereon are respectfully requested. As rejected Claims 5, 8-13 and 17 are directly or indirectly dependent upon amended Claims 1, 14 and 19, the Examiner is respectfully requested to withdraw the rejection of these claims under 35 U.S.C. §103(a) as allegedly being unpatentable over Munks.

In view of the foregoing remarks herein, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance be issued.

If the Examiner believes that a telephone conference with the Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steve Fischman", followed by a horizontal line.

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